Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application.

Listing of Claims:

1. (currently amended) A device for controlling fluid flow, of the type having a variable orifice and configured to use a pressure signal, comprising:

a fluid flow conduit having a circular cross section;

an orifice defined along a length of the conduit, the orifice having at least one planar ~~inner~~ wall extending in a longitudinal direction of the conduit and defining a maximum cross sectional area that is less than half a cross-sectional area of the conduit; and

an element having a linear edge configured to mate with the at least one planar ~~inner~~ wall of the ~~fluid flow conduit~~ orifice to form a seal therewith, the element being movable in a direction transverse to the longitudinal direction between an open position wherein fluid flows through the ~~conduit~~ orifice and a closed position wherein the element substantially shuts off fluid flow ~~in~~ through the ~~conduit~~ orifice.

2. (currently amended) The ~~variable orifice~~ device of claim 1, wherein the ~~conduit has a rectangular cross-section and the element is substantially rectangular-shaped~~ orifice cross-section is defined in part by a position of the element between the open and closed positions.

3. (currently amended) The ~~variable orifice~~ device of claim 1, wherein the ~~conduit~~ orifice includes at least one contoured sidewall and the element includes at least one edge having a curvature that substantially matches the cross-sectional shape of the contoured sidewall of the ~~conduit~~ orifice.

4. (currently amended) The ~~variable orifice~~ device of claim 1, wherein the pressure signal is provided by a pressure sensor mounted in the housing.

5. (currently amended) The ~~variable orifice~~ device of claim 1, wherein the pressure signal is provided by a pressure device mounted outside the housing either upstream or downstream of the device.

6. (currently amended) A device for measuring fluid flow, of the type having a variable orifice and configured to use a pressure signal, comprising:

a fluid flow conduit having ~~at least one~~ a planar inner wall extending in a longitudinal direction of the conduit; and

an element having a ~~linear edge~~ generally rectangular shaped surface facing the planar inner wall and configured to mate with the ~~at least one~~ planar inner wall ~~of the fluid flow conduit~~ to form a seal therewith, the rectangular shaped surface having a length dimension in the longitudinal direction that is at least as great as a width dimension of the rectangular shaped surface, the element being movable in a direction transverse to the longitudinal direction between an open position wherein fluid flows through the conduit and a closed position wherein the element substantially shuts off fluid flow in the conduit.

7. (currently amended) The ~~variable orifice~~ device of claim 6, wherein the conduit ~~has a rectangular cross-section and the element is substantially rectangular shaped~~ includes a rectangular cross-section defined in part by the planar inner wall, a circular cross-section upstream and downstream of the planner inner wall, and tapers that transition from the circular cross-section to the rectangular cross-section upstream and downstream of the planar inner wall.

8. (currently amended) The ~~variable orifice~~ device of claim 6, wherein ~~the conduit includes at least one contoured sidewall and the element includes at least one edge that has a curvature that substantially matches the cross-sectional shape of the contoured sidewall of the conduit~~ the rectangular shaped surface includes a leading edge facing upstream to the fluid flow and a trailing edge facing downstream to the fluid flow, wherein at least one of the trailing edge and the leading edge includes a taper.

9. (currently amended) The ~~variable orifice~~ device of claim 6, wherein the pressure signal is provided by a pressure sensor mounted in the housing.

10. (currently amended) The ~~variable orifice~~ device of claim 6, wherein the pressure signal is provided by a pressure device mounted outside the housing either upstream or downstream of the device.

11. (currently amended) A device for controlling fluid flow, of the type having a variable orifice and a pressure sensor, comprising:

a conduit having first, second and third segments, the first and third segments having a circular cross-section, and the second segment having a non-circular cross-section with at least two planar portions and being positioned between the first and third segments, a cross-sectional area of the second segment is less than a cross-sectional area of the first and third segments; and

an element having at least one ~~linear edge~~ planar surface facing one of the at least two planar portions of the second segment and configured to engage the second segment to substantially shut off fluid flow in the conduit, the planar surface having a length dimension in a longitudinal direction of the conduit that is at least as great as a width dimension of the planar surface.

12. (currently amended) A device for measuring and controlling fluid flow, comprising:

a conduit having an input portion with an inner circular cross-section, and an orifice portion with an inner rectangular cross-section, wherein the inner rectangular cross-section defines a maximum area less than an area defined by the inner circular cross-section;

a pressure sensor configured to measure pressure within the conduit; and

a movable element adapted and configured to engage the inner rectangular cross-section of the orifice portion to control fluid flow.

13. (currently amended) An apparatus for controlling and metering fluid flow, comprising:

a housing including:

a fluid flow conduit having first, second and third portions along a length of the conduit, the first and third portions having a circular cross-section, and the second portion including at least one planar sidewall and having a maximum cross-sectional area less than a cross-sectional area of the first portion, the second portion being positioned between the first and third portions;

an element bore extending transverse to the conduit and providing access to the second portion; and

first and second sensor chambers ~~each having an inlet and an outlet, the inlet and outlet of the first sensor chamber being in fluid communication with respective first and second portions of the conduit, and the inlet and outlet of the second sensor chamber being in fluid communication with respective second and third portions of the conduit~~ defined in the housing along the length of the conduit on opposing sides of the second portion and directly exposed to fluid flowing through the conduit;

an element having a ~~linear edge~~ planar surface arranged and configured to mate with the at least one ~~flat~~ planar sidewall to form a seal therewith and movable in the element bore between an open position wherein fluid flows through the conduit and a closed position wherein the element substantially shuts off fluid flow through the conduit; and

first and second pressure sensors mounted in respective first and second sensor chambers and configured to determine a pressure differential in the housing.

14. (original) The apparatus of claim 13, wherein the first and third portions of the conduit have a circular cross-section, and the second portion of the conduit has a rectangular cross-section.

15. (currently amended) The apparatus of claim 13, wherein the ~~second portion of the conduit includes a flow control section having a smaller cross-sectional area than the larger cross-sectional area of the remaining sections of the second portion~~ planar surface has a length dimension in a longitudinal direction of the conduit that is at least as great as a width dimension of the planar surface.

16. (currently amended) The apparatus of claim 15, wherein the ~~flow control section~~ second portion includes an inlet and an outlet that each include at least one tapered surface that transitions from ~~the smaller cross-sectional area to the~~ a larger cross-sectional area of the ~~remaining sections of the second portion~~ first and third section to the smaller cross-sectional area of the second portion.

17. (currently amended) The apparatus of claim 13, wherein the element includes a ~~face surface having a~~ leading edge facing upstream to the fluid flow and a trailing edge facing downstream to the fluid flow, ~~the face surface being substantially planar~~ and at least one of the

trailing edge and the leading edge includes ~~including~~ a taper that substantially matches a tapered surface of the second portion.

18. (original) The apparatus of claim 13, wherein the housing is divided into at least first and second portions along a plane that passes through a center of the conduit.

19. (original) The apparatus of claim 13, wherein the first and second sensor chambers are accessible through respective first and second sensor bores that extend transverse to the conduit.

20. (original) The apparatus of claim 19, wherein the first and second sensor bores extend in a direction perpendicular to the direction of the element bore.

21. (currently amended) A method of controlling fluid flow through a device that includes a pressure sensor, a conduit having a first portion with a circular inner cross-section and a second portion with a rectangular inner cross-section having a maximum cross-sectional area that is smaller than a cross-sectional area of the first portion, and a movable element having at least one linear edge, the method comprising the steps of:

moving the movable element in the conduit in a direction transverse to a direction along a length of the conduit; and

engaging the linear edge of the movable element with the at least one flat sidewall of the conduit when in the closed position to form a seal with the at least one flat sidewall.

22. (original) The method of claim 21, wherein the device further includes a housing, and the conduit extends through the housing, the housing including a sensor chamber positioned between and in fluid communication with the first and second portions of the conduit, and a element bore extending transverse to the conduit and providing access to the second portion of the conduit, and the movable element extends through the element bore.

23. (currently amended) A method of metering fluid flowing through a device that includes a conduit having a first portion with a circular inner cross-section and a second portion with a rectangular inner cross-section, and a movable element having ~~at least one linear edge,~~

~~and~~ a planar surface facing a planar sidewall of the second portion, the planar surface having a length dimension in a longitudinal direction of the conduit that is at least as great as a width dimension of the planar surface, wherein the device is configured to use a pressure signal, the method comprising the steps of:

moving the movable element in the conduit in a direction transverse to a longitudinal direction along a length of the conduit; and

engaging the ~~linear edge~~ planar surface of the movable element with the ~~at least one flat~~ planar sidewall of the conduit when in the closed position to form a seal with the at least one ~~flat~~ planar sidewall.

24. (original) The method of claim 23, wherein the device further includes a housing, and the conduit extends through the housing, the housing including a sensor chamber positioned between and in fluid communication with the first and second portions of the conduit, and a element bore extending transverse to the conduit and providing access to the second portion of the conduit, and the movable element extends through the element bore.

25. (currently amended) A method of metering and controlling fluid flow through a fluid flow apparatus, the fluid flow apparatus including a housing, a movable element, and first and second pressure sensors, ~~the method comprising the steps of: forming a conduit through the housing;~~ the housing including a conduit, first and second sensor chambers, and an element bore, the conduit ~~including~~ having at least first, second and third portions, the first and third portions having a circular inner cross-section and the second portion including at least one planar sidewall~~; forming~~, the first and second sensor ~~chamber in the housing so as to be in fluid communication with respective first and second portions of the conduit and the second and third portions of~~ chambers configured to receive the first and second pressure sensors, respectively, wherein the first and second pressure sensors are directly exposed to fluid flowing through the conduit, ~~forming a~~ and the element bore ~~in the housing that~~ extends transverse to the conduit in the housing and provides access to the second portion of the conduit, the method comprising;

moving the movable element in the element bore to control fluid flow in the conduit;

engaging the ~~linear edge of the~~ movable element with the at least one planar sidewall of the conduit when in the closed position to form a seal with the at least one planar sidewall;

determining a pressure differential between the first and second sensor chambers using a pressure signal provided by each of the first and second pressure sensors; and

metering the fluid flow based on the pressure differential.